be impounded, and subsurface conditions.

(2) The character of the overburden and bedrock, the proposed abutment sites, and any adverse geotechnical conditions which may affect the particular dam, embankment, or reservoir site shall be considered.

(3) All springs, seepage, and ground water flow observed or anticipated during wet periods in the area of the proposed dam or embankment shall be identified on each plan.

(4) Consideration shall be given to the possibility of mudflows, rock-debris falls, or other landslides into the dam, embankment, or impounded material.

(f) If the structure meets the Class B or C criteria for dams in TR–60 or meets the size or other criteria of §77.216(a) of this chapter, each plan under paragraphs (b), (c), and (e) of this section shall include a stability analysis of the structure. The stability analysis shall include, but not be limited to, strength parameters, pore pressures, and long-term seepage conditions. The plan shall also contain a description of each engineering design assumption and calculation with a discussion of each alternative considered in selecting the specific design parameters and construction methods.

[44 FR 15357, Mar. 13, 1979, as amended at 48 FR 44780, Sept. 30, 1983; 50 FR 16199, Apr. 24, 1985; 53 FR 43605, Oct. 27, 1988; 59 FR 53028, Oct. 20, 1994]

§ 780.27 Reclamation plan: Surface mining near underground mining.

For surface mining activities within the proposed permit area to be conducted within 500 feet of an underground mine, the application shall describe the measures to be used to comply with 30 CFR 816.79.

§ 780.29 Diversions.

Each application shall contain descriptions, including maps and cross sections, of stream channel diversions and other diversions to be constructed within the proposed permit area to achieve compliance with 30 CFR 816.43 of this chapter.

[44 FR 15357, Mar. 13, 1979, as amended at 48 FR 43987, Sept. 26, 1983]

§ 780.31 Protection of publicly owned parks and historic places.

(a) For any publicly owned parks or any places listed on the National Register of Historic Places that may be adversely affected by the proposed operation, each plan shall describe the measures to be used—

(1) To prevent adverse impacts, or

(2) If a person has valid existing rights, as determined under §761.16 of this chapter, or if joint agency approval is to be obtained under §761.17(d) of this chapter, to minimize adverse impacts.

(b) The regulatory authority may require the applicant to protect historic or archeological properties listed on or eligible for listing on the National Register of Historic Places through appropriate mitigation and treatment measures. Appropriate mitigation and treatment measures may be required to be taken after permit issuance provided that the required measures are completed before the properties are affected by any mining operation.

[52 FR 4262, Feb. 10, 1987; 64 FR 70838, Dec. 17, 1999]

§ 780.33 Relocation or use of public roads.

Each application shall describe, with appropriate maps and cross-sections, the measures to be used to ensure that the interests of the public and landowners affected are protected if, under §761.14 of this chapter, the applicant seeks to have the regulatory authority approve—

(a) Conducting the proposed surface mining activities within 100 feet of the right-of-way line of any public road, except where mine access or haul roads join that right-of-way; or

(b) Relocating a public road.

[44 FR 15357, Mar. 13, 1979, as amended at 64 FR 70838, Dec. 17, 1999]

§ 780.35 Disposal of excess spoil.

(a) Each application shall contain descriptions, including appropriate maps and cross section drawings, of the proposed disposal site and design of the spoil disposal structures according to 30 CFR 816.71—816.74. These plans shall describe the geotechnical investigation, design, construction, operation,

maintenance, and removal, if appropriate, of the site and structures.

(b) Except for the disposal of excess spoil on pre existing benches, each application shall contain the results of a geotechnical investigation of the proposed disposal site, including the following:

(1) The character of bedrock and any adverse geologic conditions in the disposal area,

(2) A survey identifying all springs, seepage, and ground water flow observed or anticipated during wet periods in the area of the disposal site;

(3) A survey of the potential effects of subsidence of the subsurface strata due to past and future mining operations;

(4) A technical description of the rock materials to be utilized in the construction of those disposal structures containing rock chimmey cores or underlain by a rock drainage blanket; and

(5) A stability analysis including, but not limited to, strength parameters, pore pressures and long-term seepage conditions. These data shall be accompanied by a description of all engineering design assumptions and calculations and the alternatives considered in selecting the specific design specifications and methods.

(c) If, under 30 CFR 816.71(d), rock-toe buttresses or key-way cuts are required, the application shall include the following:

(1) The number, location, and depth of borings or test pits which shall be determined with respect to the size of the spoil disposal structure and subsurface conditions; and

(2) Engineering specifications utilized to design the rock-toe buttress or key-way cuts which shall be determined in accordance with paragraph (b)(5) of this section.

[44 FR 15357, Mar. 13, 1979, as amended at 48 FR 44780, Sept. 30, 1983; 56 FR 65635, Dec. 17, 1991]

§ 780.37 Road systems.

(a) *Plans and drawings.* Each applicant for a surface coal mining and reclamation permit shall submit plans and drawings for each road, as defined in § 701.5 of this chapter, to be constructed, used, or maintained within the proposed permit area. The plans and drawings shall—

(1) Include a map, appropriate cross sections, design drawings and specifications for road widths, gradients, surfacing materials, cuts, fill embankments, culverts, bridges, drainage ditches, low-water crossings, and drainage structures;

(2) Contain the drawings and specifications of each proposed road that is located in the channel of an intermittent or perennial stream, as necessary for approval of the road by the regulatory authority in accordance with § 816.150(d)(1) of this chapter;

(3) Contain the drawings and specifications for each proposed ford of perennial or intermittent streams that is used as a temporary route, as necessary for approval of the ford by the regulatory authority in accordance with § 816.151(c)(2) of this chapter;

(4) Contain a description of measures to be taken to obtain approval of the regulatory authority for alteration or relocation of a natural stream channel under § 816.151(d)(5) of this chapter;

(5) Contain the drawings and specifications for each low-water crossing of perennial or intermittent stream channels so that the regulatory authority can maximize the protection of the stream in accordance with § 816.151(d)(6) of this chapter; and

(6) Describe the plans to remove and reclaim each road that would not be retained under an approved postmining land use, and the schedule for this removal and reclamation.

(b) *Primary road certification.* The plans and drawings for each primary road shall be prepared by, or under the direction of, and certified by a qualified registered professional engineer, or in any State which authorizes land surveyors to certify the design of primary roads a qualified registered professional land surveyor, with experience in the design and construction of roads, as meeting the requirements of this chapter; current, prudent engineering practices; and any design criteria established by the regulatory authority.

(c) *Standard design plans.* The regulatory authority may establish engineering design standards for primary roads through the State program approval process, in lieu of engineering